



**Agilent Technologies**

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of

Commission Seeks Public  
Comment on Spectrum Policy  
Task Force Report

ET Docket No. 02-135

**REPLY COMMENTS OF AGILENT TECHNOLOGIES, INC.**

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## *Introduction*

Agilent Technologies, Inc. (“Agilent”) submits these reply comments on the Spectrum Policy Task Force (“SPTF”) Report.<sup>1</sup> Agilent joins other parties in this proceeding in commending the FCC for the efforts of the SPTF and the boldness of its proposals. Minor changes to spectrum policy will not achieve the results that will be necessary if wireless communications, and especially wireless data communications, are to keep pace with wired networks. The ever-increasing capacity of wired networks, including fiber-based networks, will encourage the development of new, bandwidth-hungry applications. These applications will in turn drive demand for wireless capacity. The challenge for wireless is to provide data capacity similar to wired networks at a comparable cost per bit.

Bringing bandwidth-hungry applications to every American will require significant improvements in wireless technology and a great deal more spectrum capacity than is available today. However, spectrum capacity is not a problem limited to web browsing and on-demand video applications. Military, medical and public safety organizations also will require greater data capacity over their wireless networks to support advanced applications for remote and mobile operations. Agilent believes that very few organizations, whether commercial, public or private, will be immune from the exponential increases in demand for data carrying capacity in wireless systems. Spectrum shortages are everyone's problem, and solving the problem is in everyone's long-term interest.

Many of the parties commenting on the SPTF report applauded the FCC and the SPTF for their efforts, but then went on to express serious doubts about the proposed solutions, especially technology-based solutions. While Agilent expressed similar concerns about the interference temperature concept, in keeping with the spirit of the

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<sup>1</sup> See Spectrum Policy Task Force Report, ET Docket No. 02-135 (Nov. 2002) (“SPTF Report” or “Report”); see also Commission Seeks Public Comment on Spectrum Policy Task Force Report, Public Notice, ET Docket No. 02-135, FCC 02-322 (rel. Nov. 25, 2002).

effort, Agilent would like to see the Commission set achievable goals and then move forward on many of the SPTF proposals. In the past, there have been many examples of technical challenges that were overcome by innovative solutions, especially when the problem was well defined. Adding color to black and white television is a good example. Regrettably, there also have been many examples of solutions in the past that were implemented without fully understanding the potential problems that might arise, which ultimately resulted in unacceptable levels of interference.

### *Interference Temperature*

With few exceptions, most of the comments on the SPTF report that addressed the interference temperature concept urged caution or outright dismissal. Agilent reaffirms its position of cautious optimism, and believes that many of the concerns expressed by Agilent and other commenting parties can be resolved with appropriate studies.

As an example, Lockheed Martin questioned how the FCC would identify transmitters that exceed the interference temperature limit.<sup>2</sup> In addition, Motorola joined Agilent in questioning how interference to a remote receiver can be determined.<sup>3</sup> These are both excellent questions that will help to direct research on the interference temperature concept.

It also may prove helpful for the Commission to set the boundaries of the problem by, for example, identifying specific frequency bands for study. The comments from Shared Spectrum Company introduce other ways that the interference temperature problem can be delimited, suggesting, for example, to place restrictions on the characteristics of the primary users.<sup>4</sup> With these limitations in place, it would be much more practical to come up with effective and reliable solutions. Ultimately, it

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<sup>2</sup> See Comments of Lockheed Martin Corporation, ET Docket No. 02-135 (Jan. 27, 2003) at 7.

<sup>3</sup> See Comments of Motorola, Inc., ET Docket No. 02-135 (Jan. 27, 2003) at 14.

<sup>4</sup> See Comments of Shared Spectrum Company, ET Docket No. 02-135 (Jan. 27, 2003) at 2-5.

may prove advantageous to adopt different limitations for different frequency bands, resulting in substantially different implementations of the interference temperature concept.

### *Receiver Specifications*

Many of the parties commenting on the SPTF report expressed concern that receiver specifications might not provide the intended benefits, could impose significant cost, and might inhibit further innovation. Agilent believes that receiver specifications are fundamental to defining enforceable interference rights. Without a basic receiver model and receiver specifications, it will be impossible to predict the impact of an interfering signal. In turn, progress in improving the efficiency of spectrum usage will be greatly impaired without an accepted reference model for receivers.

Agilent agrees with other parties who believe that receiver specifications should not be mandatory. Mandatory receiver requirements could be cost-prohibitive in some instances and could stifle innovation in others. However, if a receiver does not conform to the basic specifications, or cannot be shown to have equivalent or better performance in the presence of known classes of potentially interfering signals, then it may be unreasonable to expect that interference rights should be afforded.

Here again, in the case of receiver specifications, it is important to stress the utility of using different strategies for different frequency bands. In this way certain bands can be allowed to benefit from the advantages made possible by adhering to predictable receiver characteristics, while other bands can be left unencumbered. Even within a specific band, however, there may not be a one-size-fits all receiver model. For example, as noted in Agilent's comments, the interference to a narrowband receiver from a UWB transmitter could be low, while the interference to another UWB receiver from the same transmitter could be quite high.<sup>5</sup>

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<sup>5</sup> See Comments of Agilent Technologies, Inc., ET Docket No. 02-135 (Jan. 27, 2003) at 4.

## *Spectral Study*

In the SPTF report, the Efficiency Working Group noted that "comprehensive data on the peak and average use of public sector spectrum, and appropriate statistical modeling of such usage are not available."<sup>6</sup> Agilent believes that a comprehensive study of this spectrum is required before significant progress can be made in developing interference management policy and technology. A simple study of the noise floor would be insufficient to achieve these goals. Rather, a more comprehensive study is required in order to develop accurate statistical use models and usable interference models. In addition, any spectral survey should include elements that can be used to confirm and quantify the issues and concerns raised by commenters on the SPTF report.

Respectfully submitted,

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<sup>6</sup> Report of the Spectrum Efficiency Working Group, ET Docket No. 02-135 (Nov. 15, 2002) at 16.